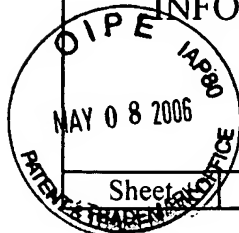


INFORMATION DISCLOSURE CITATION PTO-1449 Sheet 1 of 7				Complete If Known	
				Application Number	10/825,795
				Filing Date	April 13, 2004
				First Named Inventor	Jun Li
				Art Unit	3753
				Examiner Name	Teresa J. Walberg
				Attorney Docket Number	ARC-15173-1



U.S. PATENT DOCUMENTS							
Examiner Initials	Cite No.	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Class	Subclass	Filing Date if Appropriate
		Number - Kind Code ¹					
		20020130407A1	09-19-2002	Dahl et al.			
		20020145194A1	10-10-2002	O'Conner et al.			
		20020163079A1	11-07-2002	Awano			
		2002090501A1	7-11-2002	Tobita			
		2002100581A1	8-1-2002	Knowles, et al.			
		2002130407A1	9-19-2002	Dahl et al.			
		20030111333A1	06-03-2003	Montgomery, et al.			
		20030117770A1	06-26-2003	Montgomery, et al.			
		20030231471A1	12-18-2003	De Lorenzo et al.			
		20040013598A1	01-22-2004	McElrath et al.			
		2004005736A1	1-8-2004	Searls et al.			
		20040218362	11-4-2004	Amaro et al.			
		20040261978A1	12-30-2004	Zhan et al.			
		20040261987	12-30-2004	Zhang et al.			
		20040265489A1	12-30-2004	Dubin			
		20040266063A1	12-30-2004	Montgomery et al.			
		20040266065A1	12-30-2004	Zhang et al.			

FOREIGN PATENT DOCUMENTS								
Examiner Initials	Cite No.	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Class	Subclass	Translation	
		Country Code ² - Number ³ - Kind Code ⁴ (if known)					Yes	No

OTHER NON PATENT LITERATURE DOCUMENTS		
Examiner Initials	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published

BEST AVAILABLE COPY

Examiner Signature		Date Considered	
--------------------	--	-----------------	--

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ See Kind Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ² Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁵ Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22312-1450.

INFORMATION DISCLOSURE CITATION PTO-1449				Complete If Known	
				Application Number	10/825,795
				Filing Date	April 13, 2004
				First Named Inventor	Jun Li
				Art Unit	3753
Examiner Name	Teresa J. Walberg				
Sheet	2	of	7	Attorney Docket Number	ARC-15173-1

U.S. PATENT DOCUMENTS								
Examiner	Cite	Document Number	Publication Date	Name of Patentee or				
Initials	No.	Number - Kind Code ¹	MM-DD-YYYY	Applicant of Cited Document	Class	Subclass	Filing Date if Appropriate	
		20040053053A1	3-18-2004	Jiang et al.				
		20040101468A1	5-27-2004	Liu et al.				
		20040146560A1	7-29-2004	Whiteford, et al.				
		20040150100A1	8-5-2004	Dubin, et al.				
		20040182600A1	9-23-2004	Kawabata, et al.				
		20040184241A1	9-23-2004	De Lorenzo, et al.				
		20040191158A1	9-30-2004	Liu, et al.				
		20040218362	11-04-2004	Amaro, et al.				
		20040261987	12-30-2004	Zhang, et al.				
		20050006754A1	01-13-2005	Arik et al.				
		20050037204A1	02-17-2005	Oslander et al.				
		20050061496A1	3-24-2005	Matabayas				
		20050067693A1	3-31-2005	Nihei, et al.				
		20050092464A1	5-5-2005	Leu, et al.				
		20050116336A1	6-2-2005	Chopra, et al..				
		20050136248A1	6-23-2005	Leu, et al.				
		20050139642A1	6-30-2005	Koning, et al..				
FOREIGN PATENT DOCUMENTS								
Examiner Initials	Cite No.	Foreign Patent Document	Publication Date MM-DD-YYY Y	Name of Patentee or Applicant of Cited Document	Class	Subclass	Translation	
		Country Code ² - Number ³ - Kind Code ⁴ (if known)					Yes	No
OTHER NON PATENT LITERATURE DOCUMENTS								
Examiner Initials	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published						

Examiner Signature		Date Considered	
---------------------------	--	------------------------	--

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ See Kind Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ² Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁵ Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

INFORMATION DISCLOSURE CITATION PTO-1449				Complete If Known	
				Application Number	10/825,795
				Filing Date	April 13, 2004
				First Named Inventor	Jun Li
				Art Unit	3753
				Examiner Name	Teresa J. Walberg
Sheet	3	of	7	Attorney Docket Number	ARC-15173-1

U.S. PATENT DOCUMENTS							
Examiner	Cite	Document Number	Publication Date	Name of Patentee or			
Initials	No.	Number - Kind Code	MM-DD-YYYY	Applicant of Cited Document	Class	Subclass	Filing Date if Appropriate
		20050139991A1	6-30-2005	White, et al.			
		20050150887A1	7-14-2005	Taya, et al.			
		20050167647A1	8-4-2005	Huang et al.			
		20050224220A1	10-13-2005	Li, et al.			
		20050238810A1	10-27-2005	Scaringe, et al.			
		20050260412A1	11-24-2005	Gardner			
		20050269726A1	12-8-2005	Matabayas, JR.			
		5,818,700	10/6/1998	Purinton; Donald L.			
		5,837,081	11/17/1998	Ting, et al.			
		5,926,370	07/20/1999	Cromwell			
		5,965,267	10/12/1999	Nolan, et al.			
		6,156,256	12/5/2000	Kennel			
		6,231,744 B1	05-15-2001	Ying et al.			
		6,340,822	1/22/2002	Brown, et al.			
		6,359,288 B1	03-19-2002	Ying et al.			
		6,383,923	5/7/2002	Brown, et al..			
		6,407,922B1	06-18-2002	Eckblad et al.			

FOREIGN PATENT DOCUMENTS								
Examiner	Cite	Foreign Patent Document	Publication Date	Name of Patentee or	Class	Subclass	Translation	
Initials	No.	Country Code ² - Number ³ - Kind Code ⁴ (if known)	MM-DD-YYYY	Applicant of Cited Document			Yes	No

OTHER NON PATENT LITERATURE DOCUMENTS		
Examiner	Cite	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published
Initials	No.	

Examiner Signature		Date Considered	
---------------------------	--	------------------------	--

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ See Kind Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ² Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁵ Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

INFORMATION DISCLOSURE CITATION PTO-1449				Complete If Known	
				Application Number	10/825,795
				Filing Date	April 13, 2004
				First Named Inventor	Jun Li
				Art Unit	3753
Examiner Name	Teresa J. Walberg				
Sheet	4	of	7	Attorney Docket Number	ARC-15173-1

U.S. PATENT DOCUMENTS							
Examiner	Cite	Document Number	Publication Date	Name of Patentee or			
Initials	No.	Number - Kind Code	MM-DD-YYYY	Applicant of Cited Document	Class	Subclass	Filing Date if Appropriate
		6,432,740 B1	08-13-2002	Chen			
		6,452,274	09/17/2002	Hasegawa et al.			
		6,504,292	1/7/2003	Choi, et al.			
		6,713,151	3/30/2004	Dean, et al..			
		6,800,886	10/5/2004	Awano			
		6,855,376	2/15/2005	Hwangg et al.			
		6,856,016 B2	02-15-2005	Searls et al.			
		6,864,571 B2	03-08-2005	Arik et al.			
		6,891,724	5/10/2005	De Lorenzo, et al.			
		6,921,462	7/26/2005	Montgomery, et al.			
		6,924,335	8/2/2005	Fan, et al.			
		6,962,823	11/8/2005	Empedocles, et al.			
		6,989,325	1/24/2006	Uang, et al.			
		6,965,513B2	11-15-2005	Montgomery et al.			

FOREIGN PATENT DOCUMENTS								
Examiner Initials	Cite No.	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Class	Subclasses	Translation	
		Country Code ² - Number ³ - Kind Code ⁴ (if known)					Yes	No
		WO 03/054958A1	07-03-2003	Intel Corporation				
		EP 1329953A1	08-03-2003	Intel Corporation				
		WO 03/072679A1	09-04-2003	Carbon Nanotechnologies, Inc.				
		WO 03/107419A1	12-24-2003	Intel Corporation				

OTHER NON PATENT LITERATURE DOCUMENTS			
Examiner Initials	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	
		Banerjee, Kaustav, et al., "3-D Heterogeneous ICs: A Technology for the Next Decade and Beyond", 5th IEEE Workshop on Signal Propagation on Interconnects, Venice, Italy, May 13-16, 2001.	

Examiner Signature		Date Considered	
--------------------	--	-----------------	--

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ See Kind Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ² Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁵ Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

INFORMATION DISCLOSURE CITATION PTO-1449				Complete If Known	
				Application Number	10/825,795
				Filing Date	April 13, 2004
				First Named Inventor	Jun Li
				Art Unit	3753
				Examiner Name	Teresa J. Walberg
Sheet	5	of	7	Attorney Docket Number	ARC-15173-1

	Berber, et al., Unusually High Thermal Conductivity of Carbon Nanotubes, <i>Physical Review Letters</i> , 05/15/2000, 4613-4616, Vol. 84, No 20.
	Cassell, Alan, "Directed Growth of Free-Standing Single-Walled Carbon Nanotubes", <i>J Am. Chemical Society</i> , 1999, 121, pgs. 7975-7976.
	Chiang, Ting-Yen, "A New Analytical Thermal Model for Multilevel ULSI Interconnects Incorporating Via Effect", Center for Integrated Systems, Stanford University (no date given).
	Chiang, Ting-Yen, et al., "Effect of Via Separation and Low-k Dielectric Materials on the Thermal Characteristics of Cu Interconnects", <i>IEDM 2000</i> (no date).
	Chuang, Helen F., et al., "Improvement of Thermal Contact Resistance by Carbon Nanotubes and Nanofibers," <i>Journal of Nanoscience and Nanotechnology</i> (2004), Vol. 4, No. 8, pgs. 964-967, American Scientific Publishers.
	Cui, Yi, et al., "Doping and Electrical Transport in Silicon Nanowires", <i>Journal of Physical Chemistry</i> , Vol. 104, No. 22, June 8, 2000, pgs. 5213-5216.
	de Pablo, P.J., "A simple, reliable technique for making electrical contact to multiwalled carbon nanotubes", <i>Applied Physics Letters</i> , Vol. 74, No. 2, January 11, 1999, pgs. 323-325.
	Delzeit, Lance, et al., "Growth of carbon nanotubes by thermal and plasma chemical vapour deposition processes and applications in microscopy", <i>Nanotechnology</i> , Vol. 13, May 23, 2002, pgs. 280-284.
	Delzeit, Lance, et al., "Growth of multiwall carbon nanotubes in an inductively coupled plasma reactor", <i>Journal of Applied Physics</i> , Vol. 91, No. 9, May 1, 2002, pgs. 6027-6033.
	Goodson, K.E., et al., "Improved Heat Sinking for Laser-Diode Arrays Using Microchannels in CVD Diamond", <i>IEEE Transactions on Components, Packaging, and Manufacturing Technology</i> , Part B, Advanced Packaging, Vol. 20, Issue 1, February 1997, pgs. 104-109.
	Hone, J., et al., "Thermoelectric Power of Single-Walled Carbon Nanotubes", <i>Physical Review Letters</i> , Vol. 80, No. 5, February 2, 1998, pgs. 1042-1045.
	Huang, Z.P., et al. "Growth of highly oriented carbon nanotubes by plasma-enhanced hot filament chemical vapor deposition", <i>Applied Physics Letters</i> , Vol. 73, No. 26, December 28, 1998, pgs. 3845-3847.
	<i>International Semiconductor Road Map (ITRS-2001)</i> , Section on Interconnect, http://public/itrs.net/files/2001ITRS/interconnect.pdf .
	Kim, Mun Ja, et al., "Growth characteristics of carbon nanotubes via aluminum nanopore template on Si substrate using PECVD", <i>Elsevier Thin Solid Films</i> , Vol. 425, 2003, pgs. 312-317.
	Kong, Jing, et al., "Synthesis of individual single-walled carbon nanotubes on patterned silicon wafers", <i>Nature</i> , Vol. 395, Oct. 29, 1998, pgs. 878-881.

Examiner Signature		Date Considered	
---------------------------	--	------------------------	--

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ See Kind Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ² Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁵ Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

INFORMATION DISCLOSURE CITATION PTO-1449				Complete If Known	
				Application Number	10/825,795
				Filing Date	April 13, 2004
				First Named Inventor	Jun Li
				Art Unit	3753
				Examiner Name	Teresa J. Walberg
Sheet	6	of	7	Attorney Docket Number	ARC-15173-1

	Kurabayashi, K, et al., "Precision Measurement and Mapping of Die-Attach Thermal Resistance", <i>IEEE Transactions on Components, Packaging, and Manufacturing Technology, Part A: Advanced Packaging</i> , Vol. 21, Issue 3, September 1998. pgs. 506-514
	Li, Jun, et al., "Electronic properties of multiwalled carbon nanotubes in an embedded vertical array", <i>Applied Physics Letters</i> , Vol. 81, No. 5, July 29, 2002, pgs. 910-912.
	Li, Jun, et al., "Bottom Up Approach for Carbon Nanotube Interconnects, <i>Applied Phys. Letters</i> , 4/18/2003, 2491-2493, Vol 82, No. 15, American Institute of Physics
	Liu, Jie, et al., "Controlled deposition of individual single-walled carbon nanotubes on chemically functionalized templates", <i>Chemical Physics Letters</i> , 303, April 2, 1999, pgs. 125-129.
	McEuen, Paul L., et al., "Single-Walled Carbon Nanotube Electronics", <i>IEEE Transactions on Nanotechnology</i> , Vol. 1, No. 1, March 2002, pgs. 78-85.
	Meyyappan, M., et al., "Carbon nanotube growth by PECVD: a review", <i>Plasma Sources Science and Technology</i> , Vol. 12, April 2, 2003, pgs. 205-216.
	Ren, Z.F., et al., "Synthesis of Large Arrays of Well-Aligned Carbon Nanotubes on Glass", <i>Science</i> , Vol. 282, November 6, 1998, pgs. 1105-1107.
	Shi, Li., "A Microdevice for Measuring Thermophysical Properties of Nanowires and Nanotubes", <i>2001 ASME International Mechanical Engineering Congress and Exposition</i> , November 11-16, 2001, pgs. 359-362.
	Shi, Li., "Scanning thermal microscopy of carbon nanotubes using batch-fabricated probes", <i>Applied Physics Letters</i> Vol. 77, No. 26, December 25, 2000, pgs. 4295-4297.
	Stevens, R., "Improved fabrication approach for carbon nanotube probe devices", <i>Applied Physics Letters</i> , Vol. 77, No. 21, November 20, 2000, pgs. 3453-3455.
	Sun, X, et al., "Theoretical modeling of thermoelectricity in Bi nanowires", <i>Applied Physics Letters</i> , Vol. 74, No. 26, June 28, 1999, pgs. 4005-4007.
	Tu et al., Growth of Aligned Carbon Nanotubes with Controlled Site Density, <i>Applied Phys. Letters</i> , 05/27/2002, 4018-4020, Vol. 80, No 21, American Institute of Physics.
	Viswanath, Ram, et al., "Thermal Performance Challenges from Silicon to Systems," <i>Intel Technology Journal Q3 Microprocessor Packaging</i> , Vol. 4, Issue 3, August 2000.
	Yakobson, Boris I., et al., "Fullerene Nanotubes: C _{1,000,000} and Beyond", <i>American Scientist online</i> , http://www.americanscientist.org/template/AssetDetail/assetid/2870?fulltext=true&print=yes .
	Zhang, Wei De, et al., "Synthesis of vertically aligned carbon nanotubes films on silicon wafers by pyrolysis of ethylenediamine", <i>Elsevier, Thin Solid Films</i> , 422, 2002, pgs. 120-125.
	Zhang, Yuegang, et al., "Electric-field-directed growth of aligned single-walled carbon nanotubes", <i>Applied Physics Letters</i> . Vol. 79, No. 19, November 5, 2001, pgs. 3155-3157.

Examiner Signature		Date Considered	
---------------------------	--	------------------------	--

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ See Kind Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ² Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁵ Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

**This Page is Inserted by IFW Indexing and Scanning
Operations and is not part of the Official Record**

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☐ BLACK BORDERS
- ☐ IMAGE CUT OFF AT TOP, BOTTOM OR SIDES
- ☒ FADED TEXT OR DRAWING
- ☒ BLURRED OR ILLEGIBLE TEXT OR DRAWING
- ☐ SKEWED/SLANTED IMAGES
- ☐ COLOR OR BLACK AND WHITE PHOTOGRAPHS
- ☐ GRAY SCALE DOCUMENTS
- ☒ LINES OR MARKS ON ORIGINAL DOCUMENT
- ☐ REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY
- ☐ OTHER: _____

IMAGES ARE BEST AVAILABLE COPY.

As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.